

52°, 96°; Coalville, 50°, 91°. *Nevada*—Pioche, 51°, 98°; Winnemucca, 37°, 97°; Fort McDermit, 41°, 101°. *Idaho*—Boise City, 46°, 97°. *Oregon*—Portland, 49°, 85°; Roseburg, 48°, 84°. *California*—Alcatraz Island, 47°, 69°; Fresno, 58°, 117°; Red Bluff, 54°, 105°; Campo, 35°, 102°; San Francisco, 51°, 73°; San Diego, 56°, 77°. *Arizona*—Yuma, 70°, 118°. *Montana*—Virginia City, 42°, 92°.

Ranges of Temperature.—The monthly ranges will generally appear from an examination of the above minima and maxima temperatures. The greatest daily ranges vary as follows: in New England from 19° at Wood's Holl to 33° at Burlington; Middle Atlantic States, 17° at Cape May to 28° at Lynchburg; South Atlantic States, 12° at Cape Lookout to 27° at Augusta; Gulf States, 14° at Key West to 22° at Montgomery, 27° at Corsicana and 35° at Camp Stockton; Ohio valley and Tennessee, 19° at Cairo to 33° at Pittsburgh; Lower Lake region 21° at Erie to 31° at Oswego; Upper Lake region, 20° at Milwaukee to 36° at Marquette; Upper Mississippi valley, 19° at Davenport to 26° at Dubuque; Red River of the North valley, 33° at Pembina to 36° at Breckenridge; Missouri valley, 25° at Yankton to 33° at Bismarck; Plains of Nebraska and Kansas, 31° at North Platte to 35° at Dodge City; Rocky Mountain stations, 30° at Santa Fe to 39° at Cheyenne and Virginia City; Utah, 40° at Salt Lake City; Idaho, 38° at Boise City; Nevada, 35° at Pioche to 49° at Winnemucca; California, 17° at San Diego to 21° at San Francisco, 35° at Sacramento and 58° at Campo; Oregon, 30° at Portland to 36° at Roseburg; Arizona, 40° at Yuma.

Frosts.—Coalville, Utah, on the 11th, slightly injured potato vines.

PRECIPITATION.

On chart No. III is illustrated the general distribution of the rain-fall for the month. On the left side of the same chart will be found a table giving the average precipitation for July by districts. For the Eastern Gulf States, the deficiency has been quite large. There have been decided excesses in the St. Lawrence valley, Tennessee and Lower Lake region.

Special Heavy Rains.—1st, Louisville, Ill., 5.00 in. in two hours. 1st and 2nd, New Harmony, Ind., 4.22 in. 4th, Pittsburgh, Pa., 2.80 in. in about two hours. 7th and 8th, Bellefontaine, Ohio, 3.00 in. 8th, Nashville, Tenn., 3.05 in. in 80 min. 9th and 10th, Plattsmouth, Neb., 4.81 in. 10th, Logan, Ia., 8.00 in. Buffalo, N. Y., 1.00 in. in 30 min. 10th and 11th, Beloit, Wis., 5.25 in.; Madison, Wis., 3.82 in. 11th, Tucson, Ariz., 5.10 in. in about one hour. 11th and 12th, New Corydon, Ind., 5.05 in. Riley, Ill., 4.26 in. 13th, Campo, Cal., 2.32 in. in 95 min., only rain-fall at station during month; Cape Hatteras, N. C., 2.10 in. in 90 min. 14th, Charleston, S. C., 5.14 in. in 3½ hours; Cape Lookout, N. C., 1.26 in. in 65 min. 19th, Sandy Spring, Md., 2.00 in. in one hour. 21st, New Orleans, La., 2.63 in. 21st and 22nd, Mt. Washington, N. H., 4.24 in. 22nd, San Antonio, Tex., 2.20 in. in 75 min. 22nd and 23rd, Morriston, Dak., 8.00 in. 23rd and 24th, Manhattan, Kan., 8.00 in. 26th, Hudson, Ohio, 3.00 in.; Chicago, Ill., 4.14 in.; Ruggles, Ohio, 3.20 in. 27th, Denison, Tex., 6.62 in. in two heavy storms; Coleman, Tex., 2.98 in.; Graham, Tex., 3.44 in. 27th to 29th, Fort Griffin, Tex., 6.68 in.; Decatur, Tex., 6.14 in. 28th and 29th, Wytheville, Va., 4.40 in. 29th, New Corydon, Ind., 3.71 in.; Corsicana, Tex., 2.27 in.; St. Meinrad, Ind., 5.30 in. 29th and 30th, Washington, D. C., 5.93 in., (over one inch fell from 12.30 to 1.30 p. m. of the 30th.); Fort Whipple, Va., 4.71 in. 30th, Barnegat, N. J., 3.42 in.; Accotink, Va., 3.50 in. 31st, Detroit, Mich., 2.48 in.; Cape Lookout, N. C., 1.80 in. in 60 min.; Phoenix, Arizona, 2.22 in., heaviest ever recorded.

Largest Monthly Rain-falls.—New Corydon, Ind., 14.71 inches; Logan, Iowa, 13.00 in.; Manhattan, Kan., 12.71 in.; St. Meinrad, Ind., 12.35 in.; Charleston, 12.10 in.; Emerson, Neb., 11.61 in.; Mount Washington, N. H., 11.00 in.; Cresco, Iowa, 10.92 in.; Taber, Iowa, 10.46 in.; Morriston, Dak., 10.20 in.; Denison, Tex., 9.95 in.; Bellefontaine, Ohio, 9.78 in.; Punta Rassa, 9.58 in.; Nashville, 9.43 in.; Hudson, Ohio, 9.30 in.; Henrietta, Tex., 9.13 in.

Smallest Monthly Rain-falls.—At Healdsburg, San Francisco, Sacramento, Monterey, Fresno, Visalia, Santa Barbara, Los Angeles and San Diego, Cal., Fort McDermit and Hamilton, Nev., and Camp Apache, Arizona, none; Red Bluff, Cal., light sprinkle; Burkes, Arizona, 0.03 in.; Wickenburg, Ariz., 0.09 in.; Hermosa, Col., 0.13 in.; Austin, Nev., 0.15 in.; Florence, Arizona, 0.21 in.; Yreka, Cal., and Boise City, Idaho, 0.31 in.; Pioche, Nev., 0.29 in.; Austin, Tex., and near Forsythe, Ga., 0.32 in. The observer at Dubuque reports that at Gangowen, twenty miles south of Dubuque, no rain has fallen since latter part of June.

Floods.—2d and 3d, Missouri Pacific railroad track 18 inches under water between Leavenworth and Kansas city; crops in low lands washed out and destroyed. 3d, at Atchinson, Kan., higher than for twelve years past, great damage along banks; at St. Josephs, Mo., higher than since 1844, considerable damage to railroad bridge, east abutment sunk eight to ten feet by current washing foundations. 4th, Sandy creek and portions of low-lands in Alleghany valley inundated, house swept away and five persons drowned; wash-outs on W. Pa. and Alleghany valley railroads. 9th, Rapid City, forty miles north of Deadwood, Dakota, p. m., water spout, rising river 15 feet in 1½ hour, deluging farms, carrying away bridges, two men drowned, and much damage done to freight trains. 10th, near Russell's station, Ohio, 500 feet of railroad track and bridges swept away. 11th, on Illinois Central railroad, near Seven Miles, 500 feet of track and three or four bridges washed away; Geneva Lake, Wis., rose 20 inches in eight hours, (unknown before,) flooding Kay's Park, Russells, &c.; at Genoa Junction, mill-dam carried away; along Maquoketa and Turkey rivers, Iowa, streams generally three feet higher than before recorded, doing much damage; at McGregor, Iowa, Mississippi river rose three feet, trains suspended by wash-outs, street waist deep. 12th, in Green, Sauk, Dane, Columbia, Rock

and Crawford counties, Wis., land badly washed and some crops lodged beyond recovery; in Kosciusko and Allen counties, northern Indiana, streams high, country flooded; in Auglaise valley, Ohio, destructive floods. 15th, Illinois Central railroad, two bridges carried away in northern Illinois. Neillsville, Wis., 20th, the recent rains made a 6 foot rise in Black river, logs running good. 21st, New Orleans, streets flooded 3 to 4 feet deep. 22nd, Silver Lake, Dak., forty miles north of Yankton, cloudburst, submerging country and drowning seven persons; west branch of Vermillion river spread out to a width of over one mile, and 10 to 30 feet deep. 28th, Missisquoi and other streams near Richford, Vt., much swollen; southwestern railroad track badly washed; trains delayed.

Drought.—Gainesville, Ga., severe drought from 6th to 27th; no rain; crops half destroyed. Somerset, Mass., very severe and injurious. Frankford, Mo., no rain of any amount has fallen within eighteen miles of this station; vegetation seriously injured by drought; early corn entirely cut short, later crops much damaged and some completely ruined. Greenville, N. C., month very dry; no rain from the 4th to 28th. Near Cleaveland, Tenn., vegetation suffering severely for want of rain; 21st, severe drought, everything drying up; 26th, very dry, vegetation parched; 27th, hottest and driest weather ever seen in the state. Wytheville, Va., 13th, drought fairly commenced; corn in fields curling and suffering; garden vegetables suffering still more; flowers entirely destroyed in large numbers where watering was impossible; no rain from 1st to 17th. Crops on Long Island suffering from drought, 7th. Dorchester Co., Md., rain much needed, pastures failing, corn suffering, 19th.

Hail.—Ft. Wallace, Kan., 28th; Camp Sheridan, Neb., 7th; Ft. Sanders, Wy. Ter., 6th, 10th; Summit, Col., 5th, 11th, 13th, 16th, 21st, 25th, 27th; Byron, Ia., 31st; Vail, Ia., 10th; Independence, Ia., 31st; Tabor, Ia., 25th, 28th, 30th, 31st; Sandy Springs, Md., 31st; Amherst, Mass., 21st; Fall River, Mass., 21st; De Soto, Neb., 31st; Clear Creek, Neb., 10th; Near Genoa, Neb., 8th; Scarsdale, N. Y., 21st; Starkey, N. Y., 10th; South Hartford, N. Y., 16th, 21st, 26th; Near Chambersburg, Pa., 12th; Catawissa, Pa., 18th, 21st; Kit Carson, Col., 9th; Salt Lake City, Utah, 15th; Winnemucca, Nev., 23rd; Denver, Col., 28th; Cheyenne, Wy. Ty., 27th; Detroit, Mich., 31st; Charleston, S. C., 14th; Washington, D. C., 19th.

Rainy Days.—The number of days on which rain has fallen varies as follows: New England, 7 to 15; Middle States, 7 to 15; South Atlantic States, 8 to 15; Gulf States, 7 to 18; Ohio valley and Tennessee, 9 to 16; Lower Lake region, 9 to 18; Upper Lake region, 9 to 15; Upper Mississippi valley, 6 to 16; Lower Missouri valley, 6 to 14; Eastern slope, 5 to 16; Rocky Mountain stations, 7 to 18; Western plateau, 1 to 4; Pacific coast, 0 to 6.

Cloudy Days.—New England, 5 to 14; Middle States, 3 to 11; South Atlantic States, 3 to 9; Gulf States, 1 to 10; Ohio valley and Tennessee, 5 to 12; Lower Lake region, 5 to 11; Upper Lake region, 5 to 11; Upper Mississippi valley, 3 to 10; Lower Missouri valley, 7 to 10; Eastern slope, 3 to 7; Rocky Mountain stations, 0 to 5; Western plateau, 1 to 4; Pacific coast, 0 to 11.

Snow.—Summit, Col., 27th, snow fell thickly at the station, covering all the surrounding summits.

RELATIVE HUMIDITY.

The average percentage of relative humidity for the month ranges as follows: New England, 62 to 83; Middle States, 62 to 84; South Atlantic States, 67 to 83; Gulf States, 65 to 81; Ohio valley and Tennessee, 63 to 72; Lower Lakes, 68 to 74; Upper Lakes, 66 to 77; Upper Mississippi valley, 63 to 75; Lower Missouri valley, 63 to 71; Eastern slope, 59 to 75; Western plateau, 13 to 34; Pacific coast, 32 to 78. High stations report as follows: Mt. Washington, 97.6; Virginia City, 36.9; Cheyenne, 52.1; Denver, 46.2; Colorado Springs, 54; Santa Fe, 40.4.

WINDS.

The prevailing winds at the Signal Service stations are shown by the arrows, flying with the wind, on chart No. II. The *maximum* velocities, in miles per hour, have been given in the description of the movements of areas of low pressure. On Mt. Washington the highest velocity, NW. 100 miles, was recorded on the 27th.

Total Movements of the Air.—The following are the *largest* monthly movements recorded at the Signal Service stations, viz.: Mt. Washington, 17,600 miles; Cape Lookout, 12,940; North Platte, 10,569; Cape Hatteras, 10,296; Portsmouth, N. C., 10,226; Dodge City, 9,285; San Francisco, 9,183; Stockton, Tex., 8,862; Cape May, 8,692. The *smallest* are: Montgomery, 1,614 miles; Knoxville, 1,803; San Antonio, 2,092; Lynchburg, 2,180; Shreveport, 2,260; Visalia, 2,277; Nashville, 2,462; Dubuque, 2,626; Graham, Tex., 2,693; Roseburg, Or., 2,716; Vicksburg, 2,708. Lieut.-Commander Chas. H. Craven, U. S. Navy, observer at U. S. Navy Yard, Mare Island, Cal., remarks: "I think it worthy of special remark the following record of the average force of the winds of this first half of *June*. * * * Average wind per hour is 17.42 miles. According to the oldest inhabitants it has been unprecedented. From 4:36 a. m., 11th to 12th, an average of 26.4 miles per hour. At 5 p. m., 6th, SW. 62 miles; at 5:30 p. m., 11th, SSW. 56 miles; at 9 p. m., 14th, WSW. 45 miles;" "also total movement of the wind for July, 13,548 miles."

Local Storms.—Rowe, Mass., 4th, heavy rain, doing considerable damage. Camp Sheridan, Neb., 7th, 4.07 to 4.16 p. m., severe thunder-storm from the east, with hail stones covering the ground like snow, largest